2°)

a- T=0 ,6s

b- $E_0 = \frac{1}{2}kX_m^2 = \frac{1}{2}.50.(3.10^{-2})^2 = 2,25.10^{-2}J$

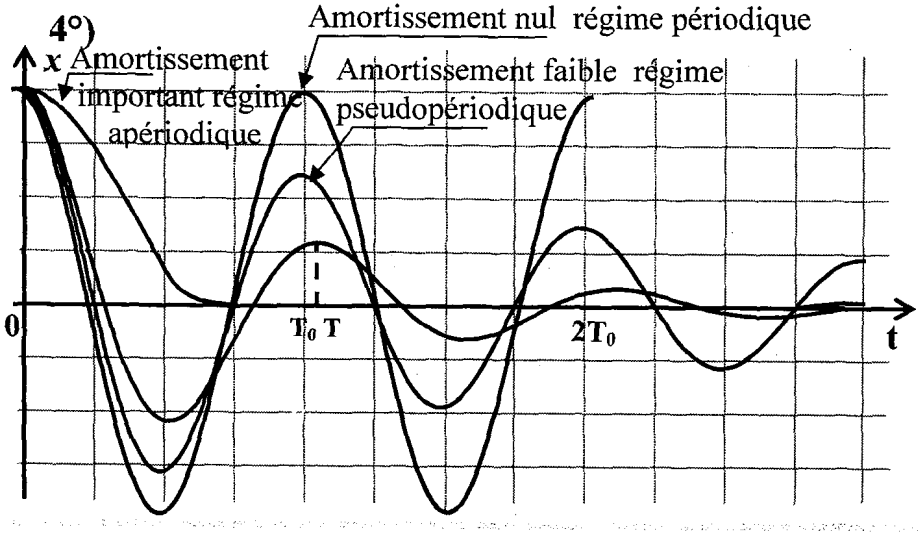
c- $\begin{cases} t_1 = 0 \quad E_0 = 2,25.10^{-2}J \\ t_2 = T \quad E_1 = \frac{1}{2}kX_{m_2}^2 = \frac{1}{2}50.\left(2,5.10^{-2}\right)^2 = 1,56.10^{-2}J \end{cases}$

$E_{perdue}=E_0 - E_1 = 68,75.10^{-4}J$

3°)

a- $E=E_C+E_p = \frac{1}{2}mv^2 + \frac{1}{2}kx^2$

b- $\frac{dE}{dt} = mva + kxv = v(ma + kx) = -hv^2$

c- $\frac{dE}{dt} = -2.(0,3)^2 = -0,18\ Watt$

4°)